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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,650	11/25/2005	Haruo Wakayama	YAMAP0979US	9580
43076 7590 04/29/2009 MARK D. SARALINO (GENERAL) RENNER, OTTO, BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE, NINETEENTH FLOOR CLEVELAND, OH 44115-2191				
EXAMINER MICHALSKI, SEAN M				
ART UNIT		PAPER NUMBER		
3724				
MAIL DATE		DELIVERY MODE		
04/29/2009		PAPER		

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/533,650  
Filing Date: November 25, 2005  
Appellant(s): WAKAYAMA, HARUO

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Mark Saralino  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/5/2008 and the amended section V  
filed 3/03/2009 appealing from the Office action mailed 9/8/2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

3,276,302	Insolio, T.A.	10-1966
6,489,588	Hoekstra et al.	12-2002
6,536,121	Ishikawa et al.	03-2003

Online Plain Text English Dictionary, "Impact" at

<http://www.onelook.com/?other=web1913&w=Impact>. Accessed on 4/24/2009.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claims 1, 5, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra et al (US 6,489,588) in view of Ishikawa et al. (US 6,536,121).**

Hoekstra discloses in figure 3 a vertical crack forming member (60) with a blade tip (62: a "scribe wheel" is a blade tip) a heating means (41) a cooling means (42, 50, etc.; are a "quenching" device—which is a cooling means) an arrangement movement means (28 figure 2) and a control unit (36 figure 2). Regarding claim 5, *the order* : (1) vertical crack forming member, (2) heating means, and (3) cooling means is clearly observed in figure 3.

Hoekstra does not explicitly disclose that the heating of the substrate is to a temperature "below the softening point", but does disclose that "modeling and

experimentation can determine optimum LSAD parameters" which implies that the other heating element (the DALCE of the ICD) should also be optimized.

Examiner took official notice of the fact that scoring operations are best when the substrate is *below the softening point* (the point at which materials with no defined melting point switch from viscous to plastic flow - and vice versa), since *scoring* is most effective when a material is *not* plastically deforming. The official notice set forth on 3/31/2008 was never traversed and thus may be considered as a fact admitted to the record.

It would have been obvious to one of ordinary skill in the art to select a heated temperature below the softening point of the substrate, since Hoekstra demonstrates that experimentation and modeling is to be applied to determine the heating parameters of the device, and additionally, it has been held that discovering an optimum result of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). That is to say, determining the desired temperature of the substrate, and ensuring that the lasers used created that temperature would have been routine in the art.

Hoekstra does not disclose an "impact force applying means".

Ishikawa discloses a scribing tool which vibrates or oscillates up and down (see figure 8 and abstract), varying the pressure applied to a substrate. Each vibration constitutes an "abrupt impact", as would a small packet of vibrations (several oscillations and then cessation). It is clear on the face of Ishikawa that the impact may be selectively actuated, and is therefore capable of applying a vibration (singular) or a

small packet of vibrations (a single “abrupt impact force”) on the basis of selective actuation in order to “deeply penetrate” the substrate.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to make the scribe wheel of Hoekstra an impact force applying scribe wheel, since doing so allows for “deep vertical cracks” (Column 2 lines 2-3) as taught by Ishikawa. Adding an impact creates a deep crack, without the use of a high static load which means that a thicker substrate may be snapped without a risk of horizontal cracking.

**Claims 1, 5, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra in view of Insolio (US 3,276,302).**

Hoekstra discloses in figure 3 a vertical crack forming member (60) with a blade tip (62: a “scribe wheel” is a blade tip) a heating means (41) a cooling means (42, 50, etc.; are a “quenching” device—which is a cooling means) an arrangement movement means (28 figure 2) and a control unit (36 figure 2). Regarding claim 5, *the order* : (1) vertical crack forming member, (2) heating means, and (3) cooling means is clearly observed in figure 3.

Hoekstra does not explicitly disclose that the heating of the substrate is to a temperature “below the softening point”, but does disclose that “modeling and experimentation can determine optimum LSAD parameters” which implies that the other heating element (the DALCE of the ICD) should also be optimized.

Examiner took official notice of the fact that scoring operations are best when the substrate is *below the softening point* (the point at which materials with no defined melting point switch from viscous to plastic flow - and vice versa), since *scoring* is most effective when a material is *not* plastically deforming. The official notice set forth on 3/31/2008 was never traversed and thus may be considered as a fact admitted to the record.

It would have been obvious to one of ordinary skill in the art to select a heated temperature below the softening point of the substrate, since Hoekstra demonstrates that experimentation and modeling is to be applied to determine the heating parameters of the device, and additionally, it has been held that discovering an optimum result of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). That is to say, determining the desired temperature of the substrate, and ensuring that the lasers used created that temperature would have been routine in the art.

Hoekstra does not disclose an "impact force applying means".

Insolio discloses a scribing tool that has a solenoid actuated cutting member (14 is a cutting member, actuated by Solenoid 20). The solenoid can be controlled so as to control the pressure/ force of the cutting tool throughout different operations. It may press down or retract, and there are in addition springs (162) which bias the carriage 130 up (away from the engaged position- figures 7-9). Insolio is also concerned with the timing of the impact upon the glass (substrate) (see column 3 lines 1-5). The operation of the device, includes a solenoid and a spring attached to the cutting tool and the body

of the device, (see figures 7-9) so as to allow the cutting wheel to be placed onto a substrate gently, and then "instantly applying full cutting voltage". (Column 3 lines 6 and 7). In this device, it can be seen that an abrupt impact force is used to engage the cutter with the substrate, at the edge of the substrate, or any other location a user would desire to begin a scribe line. Always in accordance with the invention the cutting element will be placed on the substrate (whether at an edge, and intersection, near an edge, etc.) and then the device will force the abrupt impact of the cutter so as to create a deep vertical crack (scribe line).

It would have been obvious to one of ordinary skill in the art to use the impact force applying means disclosed by Insolio in the device of Hoekstra, since doing so avoids the problem of "impact...that is often injurious to the glass" (column 3 lines 1-5) since it is controlled until after the glass has been contacted.

#### **(10) Response to Argument**

The rejected claims are argued as a group, and so the Board may select a claim for consideration as set forth in 37 C.F.R. 41.37 (b) (1) vii.

**Appellant argues first against the combination of Hoekstra and Ishikawa,** that the construction of the term "abrupt impact" is not met by Ishikawa. Appellant alleges that since the position of the tip is not changed, there can be no "impact". Examiner disagrees, believing the construction of the term as set forth in the rejections completely reasonable. An "impact" relates not only to collision, but also the *effect* of something or the translation of force. See online plain text English dictionary, which sets forth the following



**"Impact**

- (n.) Contact or impression by touch; collision; forcible contact; force communicated."

Examiner has construed a varying force (force communicated) as *impacting* the substrate/glass since it will effect the glass, and will *translate force* abruptly, regardless of whether the tip is lifted off the substrate. This is a reasonable interpretation of the term impact. As seen in the above provided definition Impact may relate to the contact of two items together or may relate to the force communicated therebetween. Examiner previously set forth as support of this the thought experiment of one hand upon a table, and another crashing down upon it. Does the table feel an impact? Yes. From what? the first hand- the hand resting on the table *impacts* the table, since it transmits a force, or communicates a force to the table. This is a reasonable definition which was consistently applied and which appellant had ample opportunity to amend around, but chose not to do so during the prosecution of the case.

Appellant further contends that since Ishikawa does not disclose "an initial impact that **differs from the remainder of the scribing process**" (emphasis added) it "does not disclose an abrupt impact". These alleged deficiencies are not in the claim, and may not properly be imported into the scope of the term "abrupt impact".

The standard of claim interpretation during prosecution is as follows: "claims in a pending application should be given their broadest reasonable interpretation" consistent with the specification and prior art. In re Pearson , 181 USPQ 641 (CCPA 1974). See additionally MPEP 904.01, and also In re Morris, 127 F.3d 1048, 44 USPQ2d 1023

(Fed. Cir. 1997). It has been established that during examination, where **applicant has the ability to amend claims**, the standard of claim interpretation is that the broadest reasonable interpretation be given to all the terms of a claim, *absent a specific definition provided in the specification*, which would then control.

Examiner notes that the definition for "impact" given above is most definitely consistent with Appellant's specification. While Examiner's interpretation is broader than the definition argued by Appellant, it is consistent, since Appellant narrow definition falls within Examiner's broader definition.

Furthermore, even if one was to import an element or function from the specification into the claims, Examiner notes that there is no discussion in Appellant's specification of the blade ever leaving the surface of the workpiece, and there is no discussion of the blade having a "traveling impact". Accordingly, it is inappropriate for Applicant to argue along these lines.

Appellant further alleges that there would be no reason to combine the teachings of Hoekstra and Ishikawa because they use different scribing technology. This is not true, since as examiner pointed out in the advisory action that Hoekstra and Ishikawa both use *scribing*. The use of one scribing element in lieu of another is not beyond the level of ordinary skill in the art. A deeper scribe (as in Ishikawa) will be stressed and propagate by lasers and cooling just the same as a small scribe (used as the initial scribe in Hoekstra).

**Regarding appellants argument against Hoekstra and Insolio**, examiner does not find them to be persuasive.

The allegation that the claim construction of the term "abrupt impact" is not reasonable is not persuasive as discussed above, regarding the rejection over Hoekstra and Ishikawa.

The allegation that Insolio "teaches away" is not found to be persuasive. Insolio does not dissuade users from an abrupt impact since Insolio discloses the use of an abrupt impact. Insolio uses what could be termed two impacts, a gentle contacting impact, and an abrupt full voltage impact. The presence of the initial contact impact does not teach against the abrupt impact of full voltage used to score the substrate.

Claim language which is inclusive ("comprising", as in the present application) does not exclude additional elements. Insolio may be said to include an additional element; the "gentle contact". Simply, claim 1 requires an "impact force applying means" *capable of* applying an abrupt impact force. It does not exclude a gentle first contact followed by an abrupt impact. Further, Insolio does not actively dissuade from using an abrupt impact, since Insolio clearly uses an "abrupt impact" in the preferred disclosed embodiment in order to effect the scoring of the substrate. Just because appellants "abrupt impact" is different than that shown by examiner does not mean that the "abrupt impact" of the prior art is not applicable to the claims.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Sean M Michalski/

Examiner, Art Unit 3724

/Kenneth Peterson/

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Conferees:

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